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ABSTRACT

Lane Community College's Computer Assisted Advising Tool (CAAT) is used by counselors to assist students in developing a plan for the completion of a degree or certificate. CAAT was designed to facilitate student advisement from matriculation to graduation by comparing degree requirements with the courses completed by students. Three major sources of data are used to generate CAAT reports: (1) the degree program description file, which stores official degree and certificate requirements using a general structure of "areas" (i.e., conceptual groupings for major requirements, minor requirements, and electives) and "tables" (i.e., listings of courses that may be used to satisfy a requirement according to specific rules); (2) student course waivers, which are applied to the fulfillment of specific programs; and (3) student transcripts, which include students' grades and current course enrollments. An online degree evaluation program compares a student's transcript, including waivers and course substitutions, with the stored requirements profile for a selected degree program. A report is then generated, listing all requirements arranged by areas, and indicating which requirements the student has completed and which remain unsatisfied. The CAAT report is arranged in a chronological fashion, providing the student and the counselor with a suggested schedule for completion of any given degree program from matriculation to graduation. The CAAT system has particular benefits for advising students with complicated transcripts or students wishing to change their major; for advising students prior to registration; and for students planning to transfer to a four-year institution. Information on the CAAT files and sample reports are appended. (EJV)

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# Computer Assisted Advising Tool (CAAT)

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Lane Community College

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## Abstract

Lane Community College's Computer Assisted Advising Tool (CAAT) is a powerful tool used by counselors to assist students in developing a plan for completion of a degree or certificate. Official degree requirements are stored on the college's mainframe computer, using a tree structure of courses and course tables. The degree requirements file is one major source of data for the Computer Assisted Advising Tool as well as a Degree Evaluation program. The other major source of data is the student's "transcript": grade records from the student data base, and waivers for specific requirements. CAAT and the Degree Evaluation program are both online interactive programs that (1) compare a student's "transcript" with the requirements for a selected degree program, and (2) print a report detailing the requirements completed and those yet to be fulfilled by the student.

COMPUTER ASSISTED ADVISING TOOL (CAAT)

Lane Community College, Eugene, Oregon, is a two-year institution of approximately 7500 F.T.E., offering a full complement of degree and certificate programs. Among these are the Associate of Arts degree, and over 50 different Associate of Science and certificate programs offered by 18 instructional departments. In 1983, a task force was appointed to explore ways to standardize the procedures by which departments were able to adopt and change degree requirements. The Curriculum Approval Office was created to keep official records of degree requirements, and to print and distribute them to staff and students. At the same time, the task force recommended that Computer Services and the Registrar investigate storing degree requirements on the college's Honeywell mainframe computer.

In late 1983, a member of the Computer Services staff began designing a system to store and access degree requirements, and evaluate students' transcripts. The design included three major output components:

1. The official requirements for each degree and certificate program. These reports were intended for students and for department use.
2. The official degree certification report. This report was to be used by the Student Records Office to

determine a student's official eligibility for granting of a certificate or degree.

3. The Computer Assisted Advising Tool (CAAT). This report was to be used by counselors and students to determine a course of study for a specific degree, taking into account requirements already fulfilled.

At the time, complicated and time-consuming manual processes were being used to produce the first two reports. The CAAT would be an entirely new addition to the advisement process.

Three major sources of data were designed for use as input to the system:

1. Degree program description file. These are the stored degree and certificate requirements.
2. Student course waivers. Waivers are applied as fulfilling specific requirements of specific degree or certificate programs.
3. Student "transcript". The student's grade records and current course enrollments make up the transcript.

Specifications for the entire system were simple and direct.

- Counselors, faculty and students must have easy access to degree requirements including historical data on degree programs.
- Degree evaluation and advising reports must be readable and easily understood by staff and students.
- Evaluations against the requirements for any degree

must be available to each student no matter what the student's declared major.

- The system must improve the accuracy of degree evaluation and student advising.
- The system must help relieve the clerical workload on faculty, counselors and staff.
- The system must be entirely online, allowing for maximum flexibility.

The coding scheme for describing degree requirements was developed using some of the basic concepts from North Carolina State University's "ADA" degree advisement system. Courses are be described in a flexible way, using wildcarding to allow groups of courses to be specified. Course requirements are first divided into conceptual groups, call "AREAS". A common division of degree programs includes a "Major Requirements" AREA, "Minor Requirements" AREA, and "Electives" AREA. AREAs may be composed of any combination of specific courses and "TABLES". A TABLE is a listing of courses that may be used to satisfy a requirement according to specific rules. An accompanying handout describes more fully the specific rules for TABLEs, AREAs and courses. TABLEs may contain other TABLEs as well as specific courses. Thus, the organization of the degree requirements profile is a tree structure, with the terminal nodes always being either specific or "wildcard" courses.

In the summer of 1986, staff in the Curriculum Approval

Office loaded degree requirements into computer files for all vocational certificates and A.S. degrees beginning with 1984 data. During the following October, the Office of Student Records began testing the online degree evaluation program. This program compares a student's transcript, including waivers and course substitutions, with the stored requirements profile for a selected degree program. The report lists all requirements arranged by AREA, indicates which requirements the student has completed and which requirements remain unsatisfied. Each time a student is evaluated for degree completion by the online program, the student's records are processed in their entirety. This means that any changes or additions to the student's records are incorporated automatically and immediately into any subsequent reports generated by the system. The student's grade records, waivers and courses in progress are compared one by one to each degree requirement. When a match is found, it is marked and stored in memory for printing on the report. Processing of a student's records averages approximately three seconds before printing of the report begins. A sample Degree Evaluation Report is provided in the handout materials. The Degree Evaluation Report is scheduled to entirely replace hand evaluations as the official certification document for LCC degrees. Hand certification evaluations take approximately one and one-half hours per student. With the new online system, waivers may be entered in a few minutes and the degree evaluation report itself may be printed immediately on an auxiliary printer attached to

the evaluator's terminal or microcomputer.

While the degree requirements file and the degree evaluation portions of the system are meeting all expectations, most of the benefits of the system are being realized in the student advisement area. The Computer Assisted Advising Tool was designed to facilitate advisement of a student from matriculation through graduation. The CAAT report is arranged in a chronological fashion, providing the student and the counselor with a suggested schedule for completion of any given degree program. As in the degree evaluation report, all requirements are listed with completed requirements indicated, as well as requirements yet unsatisfied. Another column has been added to indicate the terms in which courses are offered that will meet unsatisfied requirements. Thus, the CAAT provides a model for the student's future course of study.

Perhaps the best way to illustrate the capabilities of CAAT is to describe some typical advising sessions between counselors and students.

(1) Student A is an entering freshman wanting to major in Office Management. Seated at his terminal, the counselor enters the student's I.D. number and the code for the current version of the Office Management degree. Three seconds later the printer begins printing the individualized CAAT report for Student A. The counselor and student are able to plan the student's course of study for the coming term and year, using the CAAT report as a model.

(2) Student B has been taking classes part-time for three years, working toward an A.S. degree in Computer Programming. She wants to know her progress toward this degree, and is also curious to know if she should pursue a second degree in Computer Operations, a program having many requirements in common with the Programming degree. The counselor enters her student I.D. number at the terminal, and prints CAAT reports evaluating Student B's transcript against both Programming and Operations degree profiles. Based on the CAAT report, the counselor and Student B may now decide on the practicality of Student B completing both degrees.

The CAAT has given counselors a powerful tool for suggesting courses of study, particularly in complex situations where a student has a large transcript, or desires to change majors perhaps for the second, third or fourth time. Students and counselors have learned that they can depend on the accuracy of the tool, and counselors find themselves spending far less of their student contact time in purely clerical activities. Because the number of part-time students at LCC is growing while the college's total F.T.E. is remaining stable, there are more students needing to be served by the same number of staff. In the Counseling Office the CAAT is allowing counselors to serve more students by spending less actual time with each student, while retaining, or improving, the quality of that advising time.

In the summer of 1987, Lane Community College implemented a touch-tone registration system. As a result, the character of

registration advising has changed dramatically. Most advising used to take place concurrently with the college's online arena registration. Now advising has shifted to either of two new situations: (1) advising well in advance of registration, or (2) crisis advising. In order to diminish crisis advising, the Counseling Office plans to market CAAT heavily as a pre-registration tool, encouraging all students to see a counselor for a printout prior to the registration period.

As with most community colleges, articulation with nearby four-year colleges and universities, particularly those in the Oregon State System of Higher Education, is an important issue at LCC. The degree evaluation system is expected to provide counselors with a valuable tool for advising transfer students. Preliminary plans are being discussed to include degree program profiles for several programs at the University of Oregon in the system. This would allow counselors to evaluate an LCC student's records against a university degree, before that student transfers to the university. Ideally, links would be established with the state university system to facilitate direct transfer of information on curricular changes from the state system to LCC's computer data files.

In the future, CAAT is only one of the tools that is likely to be available to students directly through terminals placed around campus for student use, or from their homes through modems and personal computers. Such a student-based system might also provide an individual's grades, information on availability

of texts from the college bookstore, or announcements of general student interest. Students may be able to communicate with their instructors, obtain class assignments and syllabi, and make appointments with advisors using student terminals. CAAT is only one tool available that will give students better information necessary to their education, and at the same time free staff to spend more quality time with students.

## References

Butler, R.C., Bundy, J.H., Brierley, M. (1987). Automated degree audit and advisement system. Proceedings of the Computer Assisted Advising Conference (pp. 92-110). Provo, Utah: Brigham Young University.

**Computer Assisted Advising Tool (CAAT)**
**Lane Community College**

**Degree Requirements File Description**

## General Description

Data included in the description of each degree or certificate, and the organization of that data:

1. General Data
   - o Code used to identify the degree or certificate program
   - o Degree type - A.A., A.S., Certificate, Diploma, A.G.S.
   - o Version - year and term this particular curriculum was approved
   - o Title or name of program
   - o Total credits required for degree
   - o Total pass/no pass credits allowed

2. AREAs
   - o The conceptual divisions used to classify requirements. For example:
     - Major Requirements Area
     - Minor Requirements Area
     - General Electives Area
   - o AREAs contain TABLEs and/or COURSEs

3. TABLEs
   - o A convention for defining and grouping degree requirements.
   - o TABLEs used are:
     - OPTION
     - SEQUENCE
     - GROUP
     - EXCEPTION
   - o TABLEs contain COURSES and/or other TABLEs

4. COURSEs
   - o Elemental unit of a degree program profile
   - o COURSEs are basic curricular units defined in the college's official curriculum file

**Computer Assisted Advising Tool (CAAT)**
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**Degree Requirements File Description**

**Courses**

1. General data stored for each COURSE requirement:
   - o Number that identifies COURSE from curriculum file
   - o Minimum grade acceptable for COURSE to meet requirement
   - o Suggested term for completion of the COURSE

2. WILDCARD
   - o Allows for specification of more than one course by one notation
   - o An asterisk (*) substitutes for any digit in the COURSE number. For example:

     MTH100 means only MTH100 will satisfy the requirement
     MTH1** means any course beginning with "MTH1" will satisfy the requirement

3. RANGE
   - o Allows for specification of a range of COURSEs to fulfill the requirement.
   - o A "greater than" sign (>) denotes the beginning of a COURSE range. For example:

     MTH100> means any math course with a number higher than 100 will satisfy the requirement

**Computer Assisted Advising Tool (CAAT)**
**Lane Community College**

**Degree Requirements File Description**

**Tables**

1. General Data stored for each TABLE:
   - o Title for the TABLE
   - o Credits requirement
   - o Grade requirement

2. EXCEPTION
   - o The first course listed is a WILDCARD or RANGE. One or more specific COURSEs are listed under the first course.
   - o Any course matching the WILDCARD or RANGE is acceptable for fulfilling the requirement, except the specific COURSEs listed under it.
   - o No TABLEs are allowed under an EXCEPTION

3. GROUP
   - o A total credit requirement that must be fulfilled by any combination of the COURSEs and TABLEs listed in the GROUP.
   - o Typically a GROUP is used to describe a large general requirement, such as "Social Science Electives".
   - o WILDCARDs and RANGEs are often found in GROUPs
   - o A GROUP may contain:
     - COURSEs
     - Other GROUPS
     - EXCEPTIONs

4. SEQUENCE
   - o Two or more COURSEs that must be taken in a specified order.
   - o A SEQUENCE is not satisfied until all COURSEs in it are completed.
   - o A SEQUENCE may contain:
     - COURSEs
     - EXCEPTIONs

5. OPTION
   - o A choice of COURSEs or TABLEs that will satisfy the requirement.
   - o An OPTION may contain:
     - SEQUENCEs
     - GROUPs
     - EXCEPTIONs

**Computer Assisted Advising Tool (CAAT)**
**Lane Community College**

**Key to Symbols and Headings**

**Footnotes next to Course Name:**

- & indicates class may not be taken pass/no pass
- * indicates class has a prerequisite
- + indicates class is part of a sequence

- () class enclosed in parentheses indicates part of an option

**Footnotes in Grade Column:**

- * indicates student currently enrolled in class
- - indicates a waiver has been granted

******* Courses Not Matching Any Degree Requirements *******

Courses listed under this sub-heading are courses a student has completed successfully, but which do not match any of the requirements for the degree program being evaluated.

******* Courses Not Counted Against Requirements *******

Courses listed under this sub-heading are courses that a student has on his/her transcript that match degree requirements, BUT that do not conform to all of the parameters established for that requirement. For example, the grade may be less than required, or the course may be a duplicate of a counted course.

******* Partially Completed Sequences *******

Courses listed under this sub-heading are those that a student has completed that are part of an unfulfilled SEQUENCE requirement.

******* Previous LCC Degrees *******

Any degrees or certificates that the student has completed at LCC will be listed under this sub-heading.

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Computer Assisted Advising Tool

06/27/88

ASSOCIATE DEGREE NURSING — Version: Fall 1986
Associate of Applied Science — HEALTH OCCUPATIONS DEPARTMENT

| | Course | | Course # | Credits Req | Need | Cmp | Grd | Trm | Terms Offered |
|---|---|---|---|---|---|---|---|---|---|
| Term 1 | INTRO NURSNG | | NUR100 | 2 | | 2 | A | P87 | |
| | DOSAGE COMP | | 5606 | 1 | | 1 | A | P86 | |
| | HUM AN PHY 1 | | BI121 | 4 | | 4 | C | S86 | |
| | ENG COMP | | WR121 | 3 | | 3 | C | F85 | |
| | | | | 10 | 0 | 10 | | | |
| Term 2 | NUR FUND | | NUR106A | 5 | | 5 | B | F87 | |
| | NUR FUND LAB | | NUR106B | 5 | | 5 | P | F87 | |
| | HUM AN PHY 2 | | BI122 | 4 | | 4 | C | F86 | |
| | DR CHD DEVEL | | 7103 | 3 | | 3 | B | W86 | |
| | | | | 17 | 0 | 17 | | | |
| Term 3 | BASIC NUR 1 | | NUR107A | 5 | | 5 | C | W88 | |
| | BSC NUR 1 LB | | NUR107B | 5 | | 5 | P | W88 | |
| | ELM MICRO LB | | BI123 | 4 | | 4 | B | W87 | |
| | SOCIAL SCIENCE ELECTIVES | | | 3 | | | | | |
| | HUMAN BEHAVR | | PSY199 | | | 3 | B | P87 | |
| | | | | 17 | 0 | 17 | | | |
| Term 4 | *BASIC NUR 2 | | NUR109A | 6 | 1 | 5 | B | P88 | S |
| | BSC NUR 2 LB | | NUR109B | 6 | | 6 | P | P88 | |
| | NSG TRNDS | | NUR204C | 1 | | 1 | P | P88 | |
| | | | | 13 | 1 | 12 | | | |
| Term 5 | *ADVANCED NURSING 1 | | NUR206A | 5 | 5 | | | | F |
| | *ADVANCED NURSING 1 LAB | | NUR206B | 5 | 5 | | | | F |
| | NUTRITION | | FN225 | 4 | | 4* | | S88 | |
| | INTRPRSN COM | | SP214 | 3 | | 3 | A | P86 | |
| | | | | 17 | 10 | 7 | | | |
| Term 6 | *ADVANCED NURSING 2 | | NUR207A | 5 | 5 | | | | W |
| | *ADVANCED NURSING 2 LAB | | NUR207B | 5 | 5 | | | | W |
| | MATHEMATICS 1 | or | 4200 | 3 | 3 | | | | F W S SU |
| | (MATH RENEWAL | or | 6269 | 3 | 3) | | | | F W S |
| | (BUSINESS MATHEMATICS | or | BA103 | 3 | 3) | | | | F W S SU |
| | (BUSINESS MATHEMATICS | | 1151 | 3 | 3) | | | | |
| | SOCIAL SCIENCE ELECTIVES | | | 3 | | | | | |
| | GEN PSYCH | | PSY201 | | | 3 | B | W87 | |
| | | | | 16 | 13 | 3 | | | |

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Computer Assisted Advising Tool

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ASSOCIATE DEGREE NURSING — Version: Fall 1986
Associate of Applied Science — HEALTH OCCUPATIONS DEPARTMENT

| | Course | Course # | Credits Req | Credits Need | Credits Cmp | Grd | Trm | Terms Offered |
|---|---|---|---|---|---|---|---|---|
| Term 7 | *ADVANCED NURSING 3 | NUR209A | 5 | 5 | | | | S |
| | *ADVANCED NURSING 3 LAB | NUR209B | 6 | 6 | | | | S |
| | SOCIAL SCIENCE ELECTIVES | | 3 | | | | | |
| | CONSUMER EDUCATION | SSC250 | | | 3* | | S88 | |
| | | | 14 | 11 | 3 | | | |

| | | | |
|---|---|---|---|
| Credits from Transcript | 62 | Credits Required | 104 |
| Waivers | 0 | Credits Remaining | 35 |
| In Progress | 7 | Other Institutions | 0 |

*** Courses Not Matching Any Degree Requirements ***

| | | | | | |
|---|---|---|---|---|---|
| BEG ALGEBRA | 4205 | 4 | B | F85 | |
| ELEM ALG | 4306 | 4 | B | W86 | |
| INTER ALG | MTH100 | 4 | A | P86 | |
| ELEM CHEM 1 | CH101 | 4 | B | S86 | |
| MED TERM 1 | 5483 | 2 | A | F86 | |

*** Courses Not Countable Against Degree Requirements ***

| | | | | | |
|---|---|---|---|---|---|
| INTRO NURSNG | NUR100 | 2 | F | S86 | Grd<Min |

L A N E  C O M M U N I T Y  C O L L E G E

DEGREE EVALUATION

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Associate of Science ASSOCIATE DEGREE NURSING Version: Fall 1986

| Course | | Credits Req | Needed | Comp | Grade | Term |
|---|---|---|---|---|---|---|
| AREA001 NURSING COURSES | | | | | | |
| NUR100 | INTRO NURSNG | 2 | | 2 | A | P87 |
| NUR106A | NUR FUND | 5 | | 5 | B | F87 |
| NUR106B | NUR FUND LAB | 5 | | 5 | P | F87 |
| NUR107A | BASIC NUR 1 | 5 | | 5 | C | W88 |
| NUR107B | BSC NUR 1 LB | 5 | | 5 | P | W88 |
| NUR109A | BASIC NUR 2 | 6 | 1 | 5 | B | P88 |
| NUR109B | BSC NUR 2 LB | 6 | | 6 | P | P88 |
| NUR204C | NSG TRNDS | 1 | | 1 | P | P88 |
| NUR206A | ADV NURSNG 1 | 5 | 5 | | | |
| NUR206B | ADV NSG 1 LB | 5 | 5 | | | |
| NUR207A | ADV NURSNG 2 | 5 | 5 | | | |
| NUR207B | ADV NSG 2 LB | 5 | 5 | | | |
| NUR209A | ADV NURSNG 3 | 5 | 5 | | | |
| NUR209B | ADV NSG 3 LB | 6 | 6 | | | |
| | | 66 | 32 | 34 | | |
| AREA002 SCIENCE & MATH | | | | | | |
| 5606 | DOSAGE COMP | 1 | | 1 | A | P86 |
| BI121 | HUM AN PHY 1 | 4 | | 4 | C | S86 |
| BI122 | HUM AN PHY 2 | 4 | | 4 | C | F86 |
| BI123 | ELM MICRO LB | 4 | | 4 | B | W87 |
| | | 13 | 0 | 13 | | |
| AREA003 GENERAL EDUCATION | | | | | | |
| WR121 | ENG COMP | 3 | | 3 | C | F85 |
| FN225 | NUTRITION | 4 | | 4* | | S88 |
| OPT01 | CHILD DEVELOPMENT | 3 | | | | |
| 7103 | DR CHD DEVEL | | | 3 | B | W86 |
| OPT02 | SPEECH | 3 | | | | |
| SP214 | INTRPRSN COM | | | 3 | A | P86 |

L A N E  C O M M U N I T Y  C O L L E G E

DEGREE EVALUATION



Associate of Science ASSOCIATE DEGREE NURSING Version: Fall 1986

| | Course | Credits Req | Needed | Comp | Grade | Term |
|---|---|---|---|---|---|---|
| OPT03 | MATH REQUIREMENT | 3 | 3 | | | |
| GRP01 | SOCIAL SCIENCE ELECTIVES | 9 | | | | |
| PSY201 | GEN PSYCH | | | 3 | B | W87 |
| PSY199 | HUMAN BEHAVR | | | 3 | B | P87 |
| SSC250 | CONSUMER EDUCATION | | | 3* | | S88 |
| | | 25 | 3 | 22 | | |

| | | | |
|---|---|---|---|
| CREDITS FROM TRANSCRIPT | 62 | CREDITS REQUIRED | 104 |
| WAIVERS | 0 | CREDITS REMAINING | 35 |
| IN PROGRESS | 7 | OTHER INSTITUTIONS | 0 |

L A N E  C O M M U N I T Y  C O L L E G E

DEGREE EVALUATION

 June 27, 1988

Associate of Science ASSOCIATE DEGREE NURSING Version: Fall 1986

| Course | | Credits Comp | Grade | Term | |
|---|---|---|---|---|---|
| *****Courses Not Matching Any Degree Requirements***** | | | | | |
| 4205 | BEG ALGEBRA | 4 | B | F85 | |
| 4306 | ELEM ALG | 4 | B | W86 | |
| MTH100 | INTER ALG | 4 | A | P86 | |
| CH101 | ELEM CHEM 1 | 4 | B | S86 | |
| 5483 | MED TERM 1 | 2 | A | F86 | |
| *****Courses Not Counted Against Requirements***** | | | | | |
| NUR100 | INTRO NURSNG | 2 | F | S86 | GRADE<MIN. |

*****Partially Completed Sequences*****

No partially completed sequences

*****Previous LCC Degrees*****

790 CERTIFICATE PRACT NUR 06/10/88

This evaluation is unofficial unless signed by a Student Records Degree Evaluator.

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Version / Degree Evaluator / Date



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